C1 concld

[a matrix] matrices formed [of said material of] in said substrate, said [matrix] matrices comprising [a first] at least two porous [region] regions, each of said at least two porous regions extending [a distance] at least partially across said substrate; and at least one detector fabricated on said substrate and associated with at least one of said at least two porous regions.

C2

3. (Twice amended) The sample separation apparatus of claim 1, wherein each of said [first] at least two porous regions [region] comprises a capillary column.

4. (Thrice amended) The sample separation apparatus of claim 1, wherein each of said [first] at least two porous regions [region] linearly traverses said substrate.

C3

5. (Thrice amended) The sample separation apparatus of claim 1, wherein one of said at least two [comprising a second] porous [region extending a distance] regions extends only partially across said substrate.

C4

6. (Twice amended) The sample separation apparatus of claim 5, wherein one of said [second] at least two porous regions [region] comprises a control column.

7. (Twice amended) The sample separation apparatus of claim 1, further comprising a reaction region immediately situated along a length of and contiguous with at least one of said [first] at least two porous regions [region].

C5

9. (Twice amended) The sample separation apparatus of claim 7, wherein said reaction region is situated at a predetermined distance from an end of said [first] at least one porous region.

10. (Twice amended) The sample separation apparatus of claim 5, further comprising [a first] reaction regions [region] situated immediately along [a length] lengths of each of said at

least two [first] porous regions [region and a second reaction region situated immediately along a length of said second porous region].

C5 concld

11. (Twice amended) The sample separation apparatus of claim 10, wherein a distance between [said] a first of said reaction [region] regions and an end of [said] a first of said at least two porous regions [region] is substantially the same as a distance between [said] a second of said reaction regions [region] and an end of [said] a second of said at least two porous regions [region].

13. (Amended) The sample separation apparatus of claim [12] 1, wherein said at least one detector comprises a thermal detector.

C6

14. (Amended) The sample separation apparatus of claim [12] 1, wherein said at least one detector comprises a field effect transistor.

15. (Amended) The sample separation apparatus of claim [12] 1, wherein said at least one detector comprises a voltage application component and a current detection component.

18. (Twice amended) The sample separation apparatus of claim 1, further comprising a migration facilitator in communication with at least one of said at least two [first] porous regions [region].

C7

19. (Twice amended) The sample separation apparatus of claim 18, wherein said migration facilitator comprises a pump in communication with a first end of said at least one [first] porous region.

21. (Twice amended) The sample separation apparatus of claim 18, wherein said migration facilitator comprises a vacuum source operatively in communication with a second end of said at least one [first] porous region.

C8

22. (Twice amended) The sample separation apparatus of claim 18, wherein said migration facilitator comprises a first electrode adjacent [a] said first end of said at least one [first] porous region and a second electrode adjacent a second end of said at least one [first] porous region.

C9

25. (Amended) The sample separation apparatus of claim 1, further comprising a stationary phase disposed in at least one of said [matrix] matrices.

C10

29. (Twice amended) The sample separation apparatus of claim 1, further comprising a sealing element situated over at least a portion of at least one of said at least two [first] porous regions [region].

C11

30. (Thrice amended) A separation apparatus, comprising:

a substrate[of a material];

at least [one] two capillary columns [column] formed in said substrate, each of said at least two capillary columns [of said material and] comprising a [first] porous matrix; and

a detector fabricated on said substrate and situated adjacent at least one of said at least two capillary columns [column].

32. (Amended) The separation apparatus of claim 30, wherein each said [first] porous matrix comprises porous silicon.

C12

33. (Amended) The separation apparatus of claim 30, wherein at least one said [first] porous matrix comprises hemispherical grain silicon.

C12 concld

34. (Amended) The separation apparatus of claim 30, further comprising a solid phase disposed on said [first] porous matrix of at least one of said at least two capillary columns.

39. (Twice amended) The separation apparatus of claim 30, [including] further comprising a pump in communication with at least one of said at least [one] two capillary columns [column].

C13

40. (Twice amended) The separation apparatus of claim 30, further comprising a valve in communication with an end of at least one of said at least [one] two capillary columns [column].

41. (Twice amended) The separation apparatus of claim 30, including a vacuum source in communication with at least one of said at least [one] two capillary columns [column].

42. (Twice amended) The separation apparatus of claim 30, including a first electrode in communication with a first end of a [said] first capillary column of said at least two capillary columns and a second electrode in communication with a second end of said first capillary column.

C14

46. (Twice amended) The separation apparatus of claim [45] 30, wherein said at least [one] two capillary columns [column and said at least another capillary column each] have substantially equal lengths.

C15

48. (Amended) The separation apparatus of claim [47] 30, wherein said [first] porous matrices [matrix and said second porous matrix] each comprise substantially equal surface areas.

49. (Amended) The separation apparatus of claim 48, wherein said at least [one] two capillary columns [column and said at least another capillary column] each comprise substantially equal volumes.

C16

50. (Twice amended) The separation apparatus of claim 30, further comprising a sealing element situated over at least a portion of at least one of said at least [one] two capillary columns [column].

C17

51. (Thrice amended) A miniature chromatograph, comprising:

a substrate[of a material];

[a]porous matrices [matrix] formed in said substrate [of said material] and comprising at least [one] two capillary [column] columns, said porous [matrix] matrices each comprising a plurality of pores.

C18

52. (Twice amended) The miniature chromatograph of claim 51, further comprising at least one detector situated adjacent at least one of said at least [one] two capillary [column] columns.

C19

56. (Twice amended) The miniature chromatograph of claim 51, further comprising a sealing element situated over at least a portion of at least one of said at least [one] two capillary [column] columns.

C20

57. (Thrice amended) An electrophoretic apparatus, comprising:

a substrate [including a material] comprising at least one of silicon, gallium arsenide, and indium phosphide;

at least one sample column formed in [said material of] said substrate and comprising a first end, a second end, and a first porous matrix which comprises a first plurality of pores; and

a control column comprising a second porous silicon matrix comprising a second plurality of pores formed in [said material of] said substrate.

C21 61. (Amended) The electrophoretic apparatus of claim 58, wherein said first electrode and said second electrode, when operably connected to a power source, are capable of generating a current along a distance of at least one of said [first] at least one sample column and said [capillary] control column.

C22 64. (Thrice amended) An analyte detection apparatus, comprising:
a substrate comprising silicon; and
matrices [a matrix] formed in [said silicon of] said substrate, said [matrix] matrices comprising at least [one] two porous [column] columns continuous with a surface of said substrate.

C23 66. (Twice amended) The analyte detection apparatus of claim 64, further comprising a capture substrate disposed on at least one of said [matrix] matrices.

C24 71. (Amended) The analyte detection apparatus of claim 64, further comprising a reaction region along the length of at least one of said at least two porous [column] columns.

C25 72. (Thrice amended) The analyte detection apparatus of claim 64, [further comprising] wherein at least one of said at least two porous columns comprises a control column[on said substrate].

REMARKS

This amendment is in response to the Office Action of May 24, 2000, which has been received and reviewed. Claims 1, 3-64, 66-74, and 105-107 are currently pending in the application. Reconsideration of the application is respectfully requested in light of the amendments and remarks presented herein.